

SECRET INSTRUMENTS,  
SECRET DESTINATIONS

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At an ungodly hour one morning in 1992, I was awakened by the phone. At the other end was a voice, saying, with a distinctly German accent, "Good morning, this is the Goethe Institute. 'Es geht um Afrika.'" In German, that means, "This is about Africa," or, ominously, "Africa's future is at stake."

I was studying composition at the Vienna Music University in Austria. The evening before the unexpected phone call, I'd gone to see a concert featuring German musicians; it was boring, so I read the program notes. The saxophonist had been on a "tour of West Africa for the Goethe Institute." Darn, I thought, wouldn't it be nice to tour in West Africa? But it's not going to happen. There is no institution in Austria that sends musicians to Africa. The Goethe Institute is for Germans, and I'm not German, so that's that.

Next morning, that phone call came. I figured I was still dreaming, or someone was playing a joke on me. I hung up. It rang again. "Sorry, we've been disconnected. I'm from the Goethe Institute. We would like to send you to Africa."

Flashback. Given my family name, many people assume I was set to be a musician by the time I was five years old. But, some isolated piano lessons aside, I made my first attempts to learn music at eighteen on percussion, settling after two years or so on drum set and composition. My starting point was, for all practical purposes, a clean slate. I had not listened to much music from the age of eight; now, I began listening to all kinds of music simultaneously. My father and I would swap tapes sometimes, and he was listening to African traditional music at that time, some of which he dubbed for me. Also, I attended some musicology lectures at the University of Vienna, and the most interesting ones by far were those by the ethnomusicologist Gerhard Kubik, whose analyses of the court music of the

Kingdom of Buganda, located in what is now Uganda, completely changed my world view.

I listened to Cuban and Ghanaian drumming, Kwela (the southern African townships' answer to American big band jazz), and other styles. African forms, rhythms, and melodies found their way into my earliest compositions, and in 1988, some months after starting to listen to African music, I wrote a piece called *Pattern Transformation*. Scored for four players on two marimbas, it was a first step toward developing my own voice as a composer. Using techniques adapted from the music of Buganda, I constructed a crazily polymetric landscape, achieved through complex hocketing and interlocking between the musicians. But, obviously, no Western-trained musicians would have practiced this approach to meter, while African traditional musicians did not read music, so I thought the piece unplayable. Then, I heard about a Hungarian ensemble called the Amadinda Percussion Group. The amadinda is a xylophone used in the music of Buganda, and sure enough, these Hungarians had become as enamored with this music as I was, and had mastered its special technique of interplay. They premiered *Pattern Transformation* in 1990 and have since played it all over the world; the Goethe Institute heard about my African-influenced music, and invited me to Côte d'Ivoire to work with traditional musicians.

While I had listened to lots of African music, I had never played any myself, and the prospect of actually going there seemed so distant I'd never given it any thought. Now, suddenly, there was an opportunity to go. The African musicians would be no better prepared to play my music than I was to play theirs. How could I collaborate with them?

The most feasible approach seemed to try to find a type of music that could not have been thought up by them or by me alone, a music that required our combined backgrounds and skills sets: something new. And that was fine by me anyway. By 1992, I was near the end of my student days in Vienna and was itching for a new experience; my plan was to work on electronic music, with a special emphasis on live performance, to investigate what would happen if I applied my nascent drumming skills to electronic percussion, a field that was then, and has remained, somewhat neglected by the experimental music community but continues to intrigue me to this day. The idea of using electronic drums in Africa seemed promising. Trouble was, apart from some tape-splicing at the university's electronic music stu-

dio, I had never worked with electronics, so I told the Goethe Institute that I'd like to take along someone specialized in electronic music. They told me it would have to be someone from Germany, but I knew no one there. I asked them for a recommendation; they were surprised I had never heard of Kurt Dahlke, aka Pyrolator.

It turned out I actually had heard some of his music. During my senior year in high school, I occasionally tuned into the radio while doing my homework and was always happy to hear some Neue Deutsche Welle (NDW), a German style of "new wave" or early "synthi-pop," a DIY mixture of punk and disco with homemade electronics and clever German lyrics. Kurt had been a founding member of the seminal NDW band Deutsch-Amerikanische Freundschaft (D.A.F.) in the late 70s and, after leaving that outfit, cofounded Der Plan, probably the most experimental group of the genre, really a performance-art collective influenced by the Residents, Genesis P-Orridge, the Düsseldorf art scene, and more. In 1979, Kurt and his friends started the recording studio and label AtaTak, and, over the years, he produced hits such as Andreas Dorau's *Fred vom Jupiter*, rock bands like Fehlfarben (currently experiencing a revival with Kurt on keyboards), and glitch-electronica experimentalists like Oval. He also became a proficient performer on several electronic instruments such as Don Buchla's Thunder and Lightning. I caught up with Kurt at a recording studio in Arnhem, the Netherlands; we decided we could work together and have continued doing so ever since.

In 1993, I purchased my first computer and an electronic percussion instrument called the DrumKat, and Kurt and I put together a duo program to present during our two-and-a-half-week stay in Africa. Finally, in February of 1994, we boarded an Air Afrique plane bound for Abidjan.

Much of my knowledge of African music was at that time still based on Gerhard Kubik's work in Buganda, but while it does display some core concepts of African music in an especially clear and extreme way, this music is a very special, unique case, and does not have terribly much in common with the traditions of West Africa, many thousands of miles from Uganda, where I now found myself. Still, to better understand the conceptual background I brought into the collaboration, some explanation is in order.

The court music of Buganda goes back hundreds of years, but the kingdom and its traditions were so severely impacted by the totalitarian

regime of Milton Obote in the 1970s that his successor, the particularly bloodthirsty Idi Amin, had little left to destroy. Kubik first came to the region in 1959 and learned to play the music just before it effectively disappeared, to resurface only after relative normalcy returned to Uganda in the final decade of the 20th century.

Baganda court music is played on a variety of instruments, including the amadina xylophone and the ennanga, a harp. The amadinda is played by three people; the music is pentatonic and an amadinda has twelve bars, ten of which are played by two players sitting opposite each other, covering a two-octave range. The third player limits himself to the top two bars, which are not touched by the other players and sound two octaves above the two lowest bars. A piece begins with the first player starting a melody in parallel octaves (with both hands hitting simultaneously), in even "quarter notes"—very fast, and usually of a length divisible into two as well as into three parts, for example, twelve or twenty-four notes. The melody is repeated, over and over again, with no variations. At a predetermined point, the second, opposing player sets in with a countermelody whose characteristics are somewhat similar to the first. Both melodies have leaps and jumps; for reasons that will soon become obvious, the stepwise progressions of European "vocal" lines are not opportune here. The two melodies are played at exactly the same, fast speed, but not in rhythmic unison. Rather, the second player plays his melody exactly in between the notes of the first, interlocking with the opposing player. Putting the two melodies together, a very fast pulse results, 500 or more impulses a minute. How can player two syncopate so quickly as to be able to play his notes exactly between player one? The answer: he doesn't syncopate at all. Try playing offbeats at such a tempo and keeping the time steady; you will see that you soon "lose it" and slow down, skidding into rhythmic unison with the downbeats. Rather than using such an approach, the second player listens to the first and internalizes the tempo. He then starts playing, quasi-syncopating once to slip in between the opposing player's notes. And from that point on, he inverts his metric perception, convincing himself that he is playing on the beat, while the other is syncopating. By experiencing the beat as occurring at different points, the two players are able to maintain equilibrium and play their exceedingly fast, interlocking structures without drifting out of sync.

This idea—that there is no necessity for a unified concept of meter within an ensemble, that players in an ensemble can have a relative notion

of the beat—is unknown in Western music, and indeed in most types of music around the world. It is, for the most part, exclusive to certain forms of Central and East African music; it does exist to a certain degree in Gamelan, but not with the same rigor and structural necessity as in amadinda music. To me, this was a completely fascinating, inspiring, and liberating concept, and has become the foundation of many of my experiments ever since.

But there is much more to the ingenuity of Baganda music theory. Players one and two are striking the same repertoire of bars, the ten lowest ones of the instrument, from opposite sides. The melodies both contain leaps and jumps, and are interlocked at an extremely fast tempo. The result of this interplay is that the listener's ear soon loses track of which note is being played by which musician. A new aural image emerges: that of a resultant pattern, of the combination of melodies. And now, your brain creates new internal subdivisions, reordering this very fast resultant pattern in different ways; for example, by frequency band. Soon, you begin hearing a melody in the upper range, another in the middle range, and another down low. None of these resultant melodies are played by any individual musician; rather, they are embedded in the deep structure of the music, emerging only when the brain has reordered the aural image resulting from the fast interlocking of the basic melodies. Gerhard Kubik therefore called these resultant melodies "inherent patterns."

One of these inherent patterns is situated on the two lowest-pitched bars of the amadinda. That's where the third player comes in, doubling this melody on the top two bars, two octaves higher. This can be quite complicated. Imagine the first and second players' melodies have thirty-six and twenty-four notes respectively; that would make the entire overall pattern 144 pulse units long before it repeats. Each inherent pattern is the jagged result of the component melodies' jumps and leaps, so the pattern on the lowest two keys is long and rhythmically irregular: quite a burden on the memory. So how is it possible to exactly replicate this on the top bars? It turns out that, while amadinda music is instrumental, a hidden vocal component exists. The same pieces can also be played on a harp called *ennanga*, and here, the player's hands interlock, one hand effectively representing each of the first two amadinda players. And then, the harp player sings a melody and lyrics, and the sung line retraces one of the inherent patterns—the exact pattern that, when played on xylophones, lands on the bottom bars. The rhythm of this melody follows the rhythm of the lyrics. So, in

order to play this pattern on the amadinda, our player three must know the song's lyrics and imagine himself singing. Provided he starts imagining the lyrics at the right moment, his resultant melody will correspond to the inherent pattern played on the xylophone's lowest bars.

Composing a piece for amadinda is akin to finding your way through a maze: melodies have to be constructed so that interesting inherent patterns result, while the rhythmic contours of traditional lyrics are implied. But the complexity goes further. Since this music is pentatonic, and the steps between pitches are, for all practical purposes, equal, a piece can be transposed four times from the original without losing its intervallic gestalt. But while you play these transposed versions, the amadinda as an instrument always remains the same, with the same pitches available. So while the intervallic relationships between the melodies remain intact, a different inherent pattern will land on the bottom bars in each transposition; consequently, a different pattern will have to be replicated on top. And while a piece may have its preferred version, any transposition can theoretically be played, and the corresponding patterns must be memorable somehow. It's a composition technique by no means less sophisticated than fugue writing; a technique of creating the sonic equivalent of a sculpture which can be experienced from many different sides.

My initial reaction to all this was twofold. I started writing *Pattern Transformation*, and, at the same time, began applying what I had learned to my drumset playing.

*Pattern Transformation*, for four players on two marimbas facing each other, is based on a pulse of well over 400 beats a minute, written as eighth notes. The piece opens with a chromatic canon, the initial "theme" starting and ending with the note "c"; for maximum density, all eighth-note pulse units are played. The structure then thins out; the theme of the canon is dropped; the chromaticism is transformed into a pentatonic environment (of course not an equidistant pentatonic one as on the amadinda; we are dealing with Western marimbas here), and the music becomes less dense. Eventually, the musicians are playing quarter notes instead of eighth notes, but they are not playing these quarter notes in rhythmic unison. They are interlocking. Two musicians play on the "downbeats" while the others are on the "offbeats," but those who play on the offbeats perceive the music as if their notes were the downbeats. And, indeed, the music can be heard either way. I do use conventional meter and barlines, but that's just to facil-

itate reading. The musicians aren't actually thinking of barlines, they are just feeling the fast basic pulse and multiples thereof; while the basic pulse remains constant, various multiples of it are played at different times. Sometimes, a musician will play each pulse unit for a little while, and then slow down, which actually means playing at the same speed but playing every other, then every third, then every fourth pulse unit, etc. Another musician might be doing the exact opposite. To the listener, it may sound fairly rubato at times, but since there is here an underlying unified sense of tempo at all times, the players remain totally coordinated. All metric relationships are tightly determined, and when they come into unison, this unison is immediately totally together, because the musicians were never actually apart, they just sounded as if.

Perhaps it comes from a pop-music influence, but this tightness, this underlying order even when things appear to be chaotic, is very important to me. That doesn't mean I object to free meter, rubato, or to the absence of any metric foundation. But something that has always fascinated me is the contrast between chaos and order. And I like phrases that are totally strange, seemingly chaotic, but are then perfectly repeated, or phrases that are played very sloppily and very precisely at the same time, with the heterophony that results (these ideas led me to develop a few years later the practice of what I call "secret instruments"). In any case, so as to create these very distinct contrasts between chaotic looseness and total tightness, the tightness had better be really tight. An efficient way to do that is to also have the disorderly sections be tight in a subliminal way, inaudible to the listener but always tangible for the musicians.

The most extreme interlocking in *Pattern Transformation* occurs when each of the four musicians plays every fourth pulse unit, but offset by one pulse in relation to the previous player. Every pulse unit is played, but each pulse is played by only one musician, and they take turns. I revisited this form of hocketing a few years later in my piece *Groove Magic*, facilitated by my secret instrument setup.

To play *Pattern Transformation*, percussionists have to learn to interlock at high tempos, divorcing themselves from the concept of a unified meter or beat, yet adhering to a unified tempo, much like in *amadinda* music. Nevertheless, it is music for Western-trained musicians. There is no spoken-word element inherent to this music, and the rhythmic relationships are constantly changing, which requires reading. My dangerously

optimistic hope was that musicians would be able to combine traditional African and traditional European skills and give rise to a new kind of musicianship, but in Vienna at the end of the 1980s, that was still a somewhat unrealistic scenario.

It's more than a little surprising that the ensemble that would first realize this dream for me came from Budapest. While Vienna was fairly conservative in a way, it was still one of the great centers of music-making in Europe, with musicians from all over the world studying or visiting. It was a last stop, a dead end before arriving at the Iron Curtain, yet it was resolutely part of Europe's free West, where information was readily available. Hungary, on the other hand, was behind the Iron Curtain, and, while home to greatly skilled musicians, not exactly the ideal place for studies in exotic traditions. Still, it was in Budapest, of all places, that a group of young percussionists had come together in 1984 to form a quartet and had somehow discovered the *amadinda*, even naming their ensemble after the instrument. They were as surprised to see a composer build on the techniques of Baganda music as I was to find musicians who could play it. As a result of their many performances of *Pattern Transformation*, numerous other ensembles also took it up, and so it has, perhaps, made a small contribution to expanding the possibilities of percussion ensembles and the ways musicians in Europe and America think about meter.

The other immediate reaction to my discovery of *amadinda* music was the creation of a novel and personal approach to playing the drumset. I asked myself whether I could use interlocking patterns to create the impression of several simultaneous meters and tempos. For any jazz drummer, "independence" is a loaded word; a player strives for independence between their limbs, so as to execute several rhythms at the same time, for example a swing pattern on the ride cymbal, a steady "two and four" on the hi-hat, and various polyrhythmic punctuations on the bass and snare drums. However, as the great jazz drummer Bob Moses points out in his book *Drum Wisdom*, independence is actually an illusion. Listeners are tricked into thinking that drummers are able to control their limbs individually, but actually they are playing a limited vocabulary of prefabricated licks featuring sufficiently complex rhythmic relationships between the limbs so that the impression of independent control arises. Indeed, Moses proceeds to instruct readers in a "non-independent" concept, in which the practicing drummer is well aware of the fact that his four limbs are very much inter-

dependent and seeks a way to produce the maximum impression of poly-metrics with the minimum amount of independence.

But conventional drum-set playing, while derived to a significant extent from an African rhythmic ancestry, does not include the concept of relative meter. I attempted to develop a drumming technique using this concept, harkening back to the *ennanga* harp, where inherent patterns are produced by one player alone. My right hand plays a repetitive pattern, circling around the drum set in a steady stream of, say, quarter notes. I could begin by hitting the ride cymbal, then my right rack tom, located to the immediate left of the cymbal, then continue to a cowbell suspended on top of my bass drum below and to the left of the rack tom, and then move my hand to an even lower position, further to the right, to strike my floor tom. Then I could return to the ride cymbal and the beginning of my pattern. I now have a pattern of four notes—four pitches, four timbres. I can then construct a similar pattern for my left hand; let's make it even simpler and make it a three-note pattern. I start with my left rack tom, which is to the left of the previously mentioned right rack tom. From there, I continue to the cowbell suspended on the bass drum—the same cowbell already included in the previous pattern. Then I continue to my snare drum, down and somewhat to the left, mirroring the down-and-right motion of my right hand from the bell to the floor tom. And from the snare, I lift my arm and land back on the left rack tom. While this is a pattern of only three sounds, the motion described by my left arm is relatively similar to that described by my right. So I now have two patterns, which I can interlock. A complete metric cycle takes  $4 \times 3$ , or twelve, notes, but the patterns interlock, so it really takes twenty-four pulse units. But I have yet to use my feet, which could be integrated into, or superimposed to great effect on top of, the hand patterns. For example, I could play the bass drum every fifth pulse unit. Every other time I play it, it would come together with the right hand; every other time, with the left. The result would be a pattern  $24 \times 5 = 120$  pulse units in length, still fairly easy to execute. I could now add the hi-hat on every seventh pulse. This gets challenging, but is still quite manageable compared to various technically demanding aspects of conventional drumming. And I now have a pattern with a length of  $120 \times 7$ , or 840, beats.

I now had a very economical and manageable way to play poly-metric structures that have simple basic ingredients but quickly explode into great complexity. But how do I keep track of where I am in my pat-

tern? In most Western music, this is done by counting; in this music, however, while there most definitely is tempo, there is no clear "one," no definite beat, making counting a schizophrenic and pointless undertaking. I do not use meter, melody, or timbre to maintain my bearings when playing these structures; rather, I use position. I conceive of this type of drumming as a choreography, a kind of dance on the drums, and by following the shapes, the forms of motion described by my body, I can feel my way through the patterns, using the relative positions of my limbs to keep track of exactly where I am at any given time.

This way, I was quickly working with much longer structures than exist in Baganda music, largely due to the availability of my feet to create additional polymeters. Playing even longer cycles is no problem, either by using more-complex patterns of motion or through other means, for example adding the aspect of striking the drums in different ways and superimposing this "parameter" on top of a pre-existing pattern, an approach somewhat reminiscent of serial music. Either way, inherent melodies quickly emerge; the drumset being an instrument of indefinite pitches, it would probably be more appropriate to speak of timbral melodies, "Klangfarbenmelodien." In the example above, both hands play the same cowbell, resulting in an obvious one-note inherent pattern. Or one could listen to the relationships between instruments of similar timbres: a 4:3 relationship emerges between the left rack tom, played by the left hand as part of a cycle of three notes/hand positions, and the right rack tom, struck by the right hand as part of a cycle of four. Since the hands are offset from each other by one basic pulse unit, the emerging 4:3 doesn't sound like the 4:3 we are conventionally accustomed to, with the two lines coming together on every third hit of the slower tempo or every fourth of the faster one. They never come together, and, indeed, this 4:3 is not a 4:3 between two different speeds. Both hands play at the same speed. Yet the time between two hits on the left tom is still shorter than between two on the right tom. It is an illusionary type of poly-metrics, a polytempo structure accomplished not through actually playing different meters or speeds but through playing motion patterns of different lengths at the same speed.

Next, I began searching for ways to notate this drumming style. The drumset is often used in music featuring little notation, and no unified drumset orthography exists, though a five-line staff is often used for convenience. This quickly proved to be an inadequate approach; drummers are

used to reading simple rhythms featuring obvious repetition, with an immediately apparent sticking. What I was writing down looked more melodic and altogether difficult to oversee. Using two staves, one for each hand, provided some relief, but still, sightreading was challenging. The solution for my problems came when it occurred to me that I was playing more based on position of my hands on the instrument than on sound or pitch: a tablature notation therefore seemed appropriate. I drew an aerial view of my drumset and started drawing vectors to represent my patterns of motion. Next, I had a small stamp made of my aerial view, and proceeded to stamp images of my drums on paper, writing down one right hand and one left hand hit per image. Around that time—late spring of 1988—I met John Zorn, who had come to Vienna to teach his game pieces in a workshop; I'd just started taking drumset lessons and was beginning to explore jazz and the New York Downtown scene. It was none other than Zorn who suggested I use a single image of my drums and write the entire pattern into it: R1, R2, R3, L1, L2, L3, etc. I followed his advice, which saved me lots of stamping. The only drumset tablature I've come across to this day, my notation proved extremely efficient. But, like any tablature, while it told me a lot about the positions of my hands on the instrument, it did not say much about rhythm. For the moment, that was not an issue, because I was always playing steady, even "eighth notes."

A few years later, I started trying to develop an analogy for this type of playing using electronics, and also sought to introduce it in various contexts, ranging from free-improvising groups to African collaborations; nevertheless, the changes I made to my technique were only slight and gradual. Recently, I've become more interested in pushing my ability to play drums in this way and in taking on the extreme technical challenges that soon emerge after the relatively easy, straightforward applications have been mastered. I began altering my patterns so that my straight-eighth pulse is interrupted or changed, and am currently working on possibilities of incorporating rhythmic notation into my tablature. I also had the desire to incorporate more space and rests into my patterns. It turns out to be quite difficult to play rests in this style: the limbs are moving along, hitting things; telling them to hold back in specific places is challenging. My solution was the invention of what I call the "non-sounding percussion instrument" or "silent block," an instrument designed to make as little sound as possible upon impact. I started out with a Jam Block, a plastic temple block which,

manufactured by the company Latin Percussion, is relatively inexpensive, very lightweight, and has a mechanism so that it can be fastened to drum stands; it also has a horizontal surface on its topside. I then searched for the type of foam that would make the absolute minimum amount of sound when struck by a drumstick; it would have to be sufficiently soft to be quasi-silent but sufficiently hard so I'd feel an impact when playing it. I then glued generous amounts of this foam onto the horizontal surface of a Jam Block. It worked. Placing several of my silent blocks in different, strategic positions around my drumset, I was able to incorporate rests into my playing while maintaining the feeling of playing constant patterns in a relaxed way. In March of 2006, I tested my concept in a recording session with John Oswald, Henry Kaiser, Michael Snow, and Casey Sokol at the Canadian Broadcasting Company in Toronto. In this recording of free-improvised music, my drumset was close-mic'd and I occasionally played very sparsely. I already knew that my modified jam blocks worked well when I played loudly and quickly; they were not individually audible between all the sounds produced by the other components of my drumkit. But what would happen when I played slowly and the microphones were only a few inches away—would the result be a sound, or an unsound? It turned out that even the slightest resonance from other parts of the drum set, as well as even the most pianissimo utterings of other instruments, covered up my silent blocks to such an extent that they were not perceptible. My invention had passed its acid test.

In late 1992, I received my first composition commission, a piece for small chamber orchestra to be performed by the London Sinfonietta at a festival of Austrian contemporary music in London in April 1993. After having written *Pattern Transformation*, I was lucky to meet the Amadinda Percussion Group, but now I would write for musicians unfamiliar with the African rhythmic techniques that had become so important to me. And yet, I wanted to somehow use methods of ensemble interplay based on my polymetric ideas. It seemed to me that many of my problems would be solved if it were possible to "conduct" the ensemble in multiple, albeit synchronized, tempos, which, while impossible with a conductor, could be done with electronics. As a drummer, I enjoyed playing to click tracks (prerecorded metronomes) in the recording studio; perhaps I could work with multiple click tracks in concert. Around the same time, I had the opportunity to spend a day at STEIM, a computer music research center in

Amsterdam, and one of their recently developed programs was called *Polyrhythm*. Initially designed for the Den Haag Percussion Group to help them rehearse rhythmically complex passages in the music of Xenakis, *Polyrhythm* was basically a sequencer designed exclusively for the input of metronomic tracks, each in its own meter and tempo, up to ridiculous levels of complexity, allowing for time signatures unnotatable in any conventional way, tempos in the decimal ranges, and practically unlimited tempo and meter changes within a track; however, each track could only produce two sounds, one on the "1" of every bar and one on the other beats. *Polyrhythm* was not written for some obscure mainframe system, it was designed to run on the Atari, the most popular personal computer at the time. This was exactly the tool I needed, and the idea of composing a piece based on the capabilities of this software—rather than a piece ideally playable without it, for which the software was merely a crutch—inspired me. I bought the program, and though I didn't own a computer yet, this was the time I also started working with electronic percussion, and to these ends had purchased an Akai S-1000 sampler, which could store about half a minute's worth of sounds, quite a bit by the standards of 1992, and had eight individual sound outputs. I conceived the following system: My piece would be for eleven musicians. Sometimes, all musicians would play at the same tempo; sometimes, the tempos would diverge. There might be eleven different tempos. Or all musicians could play at the same speed but their beats could be offset from one another by small increments of time. Each musician would listen to an individual click track via headphones, but all the clicks would always be precisely coordinated because they would be played by *Polyrhythm*, which would effectively conduct the ensemble. From the computer, the information would be relayed to my Akai sampler, where each track would be routed to a different output. As my sampler had only eight outputs, I needed to incorporate a second sampler into the setup to take care of the clicks for the remaining three musicians. From the sampler outputs, the sound would go to headphones worn by the musicians. Having musicians wear headphones in concert is a controversial proposition; they would certainly complain about not hearing themselves or each other; dynamics and intonation would be a problem, the latter especially for the strings. To alleviate these problems, I opted for open, "Walkman-style" headphones, and gave each musician an individual headphone amplifier so they could regulate their monitoring volumes individually. I eventually

found small headphone amps to clip onto the musicians' clothing, giving them control over the volume from the comfort of their seats. And because each musician had an individual track in the sampler, it was possible for me to change metronome sounds according to individual preference.

In writing the piece, which I entitled *Groove Magic*, I opted for a time-proportional notation, so that I would always be able to see exactly how the various musicians' parts interrelate. I am not the kind of composer who can write a piece part by part. Lutoslawski and some others have done that, but it's an alien approach to me, because I am always most concerned with the sound of the finished piece. I am not interested in randomness. Perhaps this comes from being an improviser; improvisation is, of course, far from random; it is, however, an exercise in loss of control. I love improvising, but when I compose, I want to maximize control; I want the music to sound exactly like I imagined it. In *Groove Magic*, I was interested in very exact coordination, a surgical, pop music-like precision. While not as complex as in *Groove Magic*, some polymetric and polytempo layering does occur in late-20th-century composition in the works of Xenakis and others, but there is always a certain looseness involved. My approach was closer to Conlon Nancarrow's, and I had the computer to help me achieve the tight synchronization I desired. No matter how many tempos occurred simultaneously, I was always conscious of how the parts lined up and had these relationships exactly in mind when composing. And when they did come together, it would be with a "bang"—the parts would suddenly converge, with no latency or hesitation.

Having no computer at my disposal, I composed the piece on paper. While my notation enabled me to keep track of what was going on in an optical/acoustical sense, I had to be mathematical about keeping abreast of each part's progress in time; otherwise, I'd never be able to untangle the mess and bring the parts back together again. I used a pocket calculator and notated the cumulative time of each part in the margins of the music paper, a somewhat Stone Age-like method. It worked, but before I knew everything was alright, there was a scare. I installed *Polyrhythm* on my friend Norbert Math's Atari and entered all the data. But when playing back the clicks, things quickly began sliding out of sync.

And there was another issue. All parts contained long rests at various points during the piece. Still, I had to "through-compose" all click

tracks; otherwise, there would be no way for me to bring a track in exactly where I needed it after the rest. But that did not mean that I wanted the metronomes to actually sound during a long rest. I didn't want my secret instruments to cause any noise pollution. They were to be inaudible to the audience; only the musicians, the insiders, the tribe members executing the ritual, were privy to the metronomic information, while the audience would hear the outside of the structure, the facade, and, while observing this strange ritual, would wonder how this duality of exact coordination and apparent chaos could have been achieved. Alas, Polyrhythm did not allow one to mute or unmute a track; it had to play straight through.

Norbert and I procured an early-model Apple PowerBook running the Cubase sequencer program. While constructing rhythm tracks as complex as what I had composed would be very difficult with a 21st-century sequencer program, it was completely impossible with 1992's version of Cubase. On the other hand, the Mac's processor was far stronger than the Atari's. We played the eleven tracks one by one on the Atari, recording each one into the Macintosh. When all tracks had been recorded, we tried playback in Cubase and were relieved to see that everything now lined up exactly as intended. And it was now easy to mute redundant click information, as every impulse of the metronome was a separate piece of data in Cubase, and individually editable. Each musician would receive two bars of countoff before starting to play. At the end of a passage, when the musician had a rest, the click would stop and remain silent until two measures before the next entrance, at which point it would resume with a countoff. This way, musicians only had to concentrate when they had to play; counting bars through long intervals of silence was unnecessary.

In numerous performances, my click track setup turned out to be very robust. I was often asked why I didn't just record the clicks to multi-track tape. I've never been attracted by tape music; an interactive element is missing, even in the case of a "secret conductor": using the computer, sounds can be changed, the tempo can be adjusted in rehearsal, etc. It is simply a much more flexible way to work; the slight chance of the computer crashing during performance is a risk I'm willing to accept.

*Groove Magic* proved to be a great success, and I got no complaints from musicians about playing with headphones. Still, I often heard, "This is a great piece. I'd love it if you composed something for me/my group. But without a click track, please." And my polymetric drumming was not

easy to integrate into situations that ultimately called for more conventional grooves. Slowly but surely, I decided I'd have to start my own group to continue developing these approaches. Today in 2007, living as I am in New York City, a place full of open-minded musicians, the time for this has finally come. But in the meantime, my life went in other directions, allowing me to continue my roads of polymetric discovery in unanticipated ways.

Africa was calling. Bernd Pirrung, the director of the Goethe Institute in Abidjan, Côte d'Ivoire, had put out a call to the local scene, inviting musicians to come to my workshop. 150 musicians showed up the first day; Kurt and I couldn't possibly work with that many people! So we decided to play some of our duo pieces for the local musicians to hear—our strangest-sounding, most inaccessible pieces. The strategy worked: the next morning, fifteen people showed up to work with us. The objective of our workshop was not clearly stated, but I insisted on having a concert at the end; I wanted us to have the pressure to come up with a tangible result. During the workshop's initial days, this objective seemed difficult to achieve.

Most people who come to Abidjan either love it or hate it. Save for Lagos, Abidjan is the largest city in West Africa, and the (naïve) idea many people have of Africa is a rural one. From independence until the 1990s, Côte d'Ivoire was one of Africa's most stable and developed countries, due in part to Félix Houphouët Boigny, the country's long-time president (until 1993), placing the economic emphasis on agriculture rather than on industry, at least until world market prices for the country's main products—cocoa, coffee, and palm oil—started falling in the 1980s. Côte d'Ivoire certainly wasn't a model democracy—Houphouët was something of a benevolent dictator—but the atmosphere was remarkably free. The relationship with France and the West always remained positive—no ruinous dabbling in Marxism here, and no romanticized nationalism of the type that caused decades of misery in Ghana, Guinea, and other neighbors. Côte d'Ivoire was a "globalized" country before globalization existed. Anyone was welcome to settle; residence permits were unnecessary. (This ended, alas, during the last years of Houphouët's tenure, ushering in the gradual trip down the slippery slope that resulted in political chaos and a stalemate on the verge of civil war starting in 1999, as yet unresolved.) But during the country's "golden years," there was even a

period when resident foreigners could vote in local elections—a trailblazing idea at the time. Côte d'Ivoire's economy benefited greatly from this openness, and people from all over West Africa came. During the 1990s, perhaps up to twenty percent of all citizens of Burkina Faso lived in Côte d'Ivoire—Burkina was the Mexico to Côte d'Ivoire's U.S.—and communities of Malians, Guineans, and Senegalese were extremely significant. Add to that Liberian refugees, more than 100,000 Lebanese (who are to West what the Indians are to East Africa, having controlled much of the commerce for many years), tens of thousands of French, a visible community of Chinese and Vietnamese, and many others, and it is no wonder Abidjan was often referred to as the “Paris of Africa”—though to me it always felt more like Africa's New York. Plateau, the city's central and administrative district, has skyscrapers and is situated on a narrow peninsula, a little like Manhattan; an important port city (with the requisite cargo areas, mariners, and drug trade), Abidjan has water everywhere, but it's built around a lagoon; much like New York, the Atlantic Ocean is present but often forgotten, on the outskirts. The comparison with the U.S. can be taken further. Very few people lived in what is now Côte d'Ivoire until about 400 years ago. Then, gradually, people started migrating in from the surrounding regions—the Akan from the east (Ghana), the Kru from the west (Liberia), the Mande and the Voltaic tribes from the north. Côte d'Ivoire has no ethnic majority, and wandering around Abidjan is an excellent way to experience the traditions of the country's different peoples, as well as those of West Africa as a whole. But it is also a very big, very chaotic place, with much technological infrastructure by West African standards (in all my travels, I have never seen another region as infrastructure-deprived as West Africa), leading some Westerners to complain that this is not the “real” Africa. I find this attitude patronizing. If people come to Africa in search of traditional huts, no problem—they will find them in the countryside. But Africans are no different from people anywhere else in the world; they want to be affluent, they want their creature comforts, they want their VCRs. To claim that a household in Abidjan is less authentic because there is a VCR in the living room is, to me, frankly, offensive.

Likewise offensive are the expectations of many “outside” fans of African music that they will hear something “authentic.” What is authentic, anyway? I greatly respect the work of musicologists—after all, much of my musical house of cards is based on it. Still, traditions emerge only to disap-

pear after some time, giving way to other, new traditions. I don't especially enjoy talking about traditional musicians; for lack of a better term, I do it anyway, and when I do so, I mean musicians whose worldview and musicianship is sufficiently rooted in a certain tradition so that they can be identified with said culture. It does not mean, however, that they feel—or should feel—any need to protect these traditions against “attacks” from “foreign” cultures, or that they should be expected to confine themselves to forms of expression already present in their cultural environment. Moreover, I do not believe in the claim to a cultural context based on ancestry. I have never understood the phrase “my culture.” I am the son of Hungarian Jews who, after nearly being killed by both Hitler and Stalin, immigrated to Austria. I had a very international upbringing, went to international schools, and now live in the U.S. I can proudly say I have no “my culture.” Even if my case is extreme, pure cultures do not exist, and those who feel their ethnicity or birthplace gives them “possession” of a certain culture would be well advised to consider where such false pride and narrowmindedness has led in past epochs of history. I've met Africans who are clueless about African history; Europeans who are clueless about Europe; Africans who are serious experts on, say, Italian literature, and Americans who know all about Japan but nothing about football. Culture is not in your blood, it is in your mind and your thoughts, and every individual has their own thoughts and their own way of understanding the world. It makes no sense to group people together according to superficial characteristics. There are no majorities in the world: we are, each and every one of us, a minority of one.

As a newcomer to Africa, coming not to learn the music of my collaborators nor to convince them to learn mine, the main question I asked was, What can we create, what can we learn, from the pooling of our minds? What can we, a group of individuals, each with his or her own background knowledge, learn from each other, and how can we inspire one another to tap into our creative intellect? Obviously, for such a collaboration to be successful, the right group of people has to come together. Narrowing down the group of participants by playing inaccessible music proved to be a useful approach; those who lacked the openmindedness to deal with something unknown simply took off. The musicians who remained had some sort of motivation; they were curious and unafraid.

What did these musicians have in common? In a way, I would say,

not much. They came from all over West Africa. Some played at weddings or circumcision ceremonies in their community; others worked the city's club scene, where a fairly commercial form of jazzed-up funk/fusion was the order of the day; some worked mainly as theater musicians or were determined to play their own music, steeped in the traditions surrounding them, but open to any influence. Not surprisingly, there were about as many native languages as there were musicians. Dioula, a Mandé language used mainly for business purposes, is the region's African lingua franca, but, in the end, the language of choice was the usual one for Abidjan: French, with some Dioula thrown in, plus an occasional word in Wolof, Malinké, Balante, Peul, Crioulo, Moré, Baoulé, Agni, and so forth. Many of the participants came from long lineages of musician/storytellers, known as griots or djeliw in Mandé languages. None of them had had a great amount of schooling; some were entirely illiterate, while some read and wrote well in French; others did not, but read the Koran in Arabic.

In hindsight, and after having worked on several other cultural exchange projects, I can say that this group, which with minor changes came to constitute the ensemble Beta Foly over the next six years, was a stroke of extremely good luck. They were expert musicians whose mission was not to defend "their" culture against outside intruders, but to take a situation as is and try to make the most creative best of it; to try anything that came their way, but never to lose their identities. In 2000, I composed a piece for Miami-based musicians from various Caribbean islands, and while it was an interesting collaboration, I felt a certain rigidity and an element of distrust I eventually attributed to what I would call "double-diaspora syndrome." Much Caribbean culture is based on African roots, so in a way Cuban music, for example, is already the music of a diaspora. Then, these musicians ended up in Miami, where their main function was to entertain a community of other displaced people who were nostalgic about their homes. Their mission was to keep it basic, to cultivate their roots. The sudden appearance of a rootless cosmopolitan whose official commission was to mix things up was greeted with reserve and hesitation.

Not so in Abidjan. But while I was itching to interact with these musicians, something else had to be developed first: a consensus among the African musicians. In the beginning, we tried playing together a bit. We jammed, and fell into a kind of world music/ethno rock. It was fun to blow that way; many exchange projects go down this path of the least common

denominator. This seemed superficial to me, so I encouraged the musicians to play together; I retired myself to the position of onlooker so they would not feel the need to accommodate me. The musicians shared a certain approach to music, and even had some melodies, some songs in common, yet their interests and priorities differed, and there were stumbling blocks—for example, their instruments' tunings occasionally seemed incompatible. I asked questions, both to further my understanding and to prevent things from getting comfortable. I'd ask them to repeat sections so I could see how their parts intertwined, and how they approached playing their instruments. I also provoked mildly. There were two balafon (traditional marimba) players at the workshop, Kaba Kouyaté from Guinea and Aly Keïta from southern Mali; their instruments were tuned differently, forcing one or the other to sit out any given piece. I persuaded them to play together and see whether, through the conflict of tunings, new harmonies, new compatibilities, could be achieved. After a few days, a group dynamic among the musicians started emerging, and I developed ideas for pieces and for ways I could integrate myself into the ensemble. In about eight days of hard work, we composed and rehearsed a collaborative repertoire, and presented it in an extremely well-attended concert which went off surprisingly smoothly. By then, we all knew we wanted to continue; an ensemble had formed, and it already had a name: Beta Foly, meaning "the music of us all" in Malinké. As I left Abidjan, I felt I had found a home, with a community of people to work with and where much interesting music could be made.

I returned a year later to record a demo cassette; in 1996, we recorded the CD *Lukas Ligeti & Beta Foly*. Released in 1997 by the German label Intuition Music, our CD contained compositional contributions from many of the band members and was essentially a compilation of experiments in the combination of African and Western approaches to music-making. We used the computer as a compositional tool as we had no notation or common tradition to build on. Electronic instruments—in my case, the DrumKat percussion controller, and in Pyrolator's, the Don Buchla-designed instruments Thunder and Lightning—were used both in recordings and in live performance. Some of my pieces (*Adjamé 220*, *Guinée imaginaire*) were almost completely scored; elsewhere, I only provided a basic concept. *L'escalier du temps* and *Langage en dessin* were poly-metric improvisations where I recorded a drum part in my motion-based style before the other musicians contributed improvised takes. Since the

studio was small and few microphones were available, the entire album had to be done by overdubbing, with not more than three musicians playing at the same time. *Langage en dessin* was recorded using a click track in a way similar to *Groove Magic*; I had introduced this method during the initial workshop in Abidjan. Much African music is based on the way individual parts interrelate and interlock; it is sometimes hard for musicians to play their part of a piece in isolation. Because playing with headphones creates a certain isolation from the other musicians, this method could be seen as counterintuitive in an African setting. I was curious to see what would happen. I began by giving an ensemble of six musicians a polymetric structure with six different click tracks, but the musicians ignored the clicks and fell into a rhythm, playing together. I asked them to pay more attention to the click, whereupon they played in total isolation from each other, listening exclusively to the secret information. So I asked them to find a compromise between the two extremes, and it worked almost instantly. The musicians quickly became very creative in the way they listened to each other, but adhered, elastically, to the clicks at the same time. I also used other headphone-conveyed information, such as speech. For example, we created hocketing structures using spoken word as a "click track," with each syllable as a "pulse unit." This sounded incredibly jagged and strange and was immensely fun to work with. I later expanded on this approach in other improvising groups. In the polymetric-drum-driven pieces on the CD, I asked the musicians to hone in on one component of my drum set and construct rhythms cuing off of this component. For example, Amadou Leye M'Baye, the sabar (Senegalese drum) player, could listen to my ride cymbal and derive a rhythm and tempo from that, while djembé player Lassiné Koné would refer to my snare drum and Tiémoko Kanté would play his bolon (a plucked-string bass instrument related to the kora) in accordance with my bass drum. Every now and then, I'd change up my rhythms, tipping the musicians off into chaos until they regained their bearings. In *Sound of No Restraint*, by contrast, we sought to emulate the approach of Korean musicians in our African environment. We listened to recordings of p'ansori and other Korean music and became inspired by the flexibility of tempo, using breath, rather than a firm beat, as the foundation. Much of the piece was free-improvised, but now and then, each player would hear six clicks in their headphones; on the sixth, they had to play a strong accent, followed by a few seconds of silence. Different players could have their

accents at different moments, but sometimes, the whole group came together. The result sounded nothing like Korean music, but nothing like any known African music, either.

In another piece, *Balarama*, I made the aforementioned incompatibility between the two balafons my guiding principle. I sampled both instruments and detuned these recordings in various ways. Playing my electronic drums, I triggered the sounds of the balafons and made their tunings converge, little by little, over about five minutes. Even when tuned identically, a timbral difference between the two instruments' samples remained. I played this piece as a duet with Aly Keita, who contributed his live balafon, whose tuning was obviously stable. The resulting tensions in intonation created interesting harmonic possibilities. Meanwhile, Pyrolator had his own duet with Aly, entitled *Brontologie 3.44*. Based on a synthesizer he had helped create years prior, he wrote a program in the computer language Max. Aly played his balafon; a microphone recorded him and fed the sound into a computer which analyzed and followed Aly's pitches. On the basis of the data thus generated, the computer composed melodies, accompanying Aly with a piano sound in a delayed response. For *African Loops*, Pyrolator and I sampled all musicians playing or singing short phrases; Pyrolator then assembled some of these recorded snippets and made a piece in an electronic dance music (techno? house?) style. On top of that was superimposed a vocal part by Yero Bobo Bah, a Guinean singer, dancer, and percussionist. *African Loops* might possibly have been the first attempt to fuse West African traditional music and electronic club/dance music; in the last few years, this type of fusion has become quite popular, particularly in Mali, and my current band, Burkina Electric, is part of this movement as well.

These experimental approaches contrasted with pieces like Lamine Baldé's *Tras di sol*, a typical example of singer-songwriter music from Guinea-Bissau, or *René*, by Tiémoko and Bobo together with Guinean flutist Babagalé Kanté, in a traditional style from Guinea's Fouta Djallon plateau. But the atmosphere was never completely traditional, as something experimental—be it only a solo featuring an unusual take on the piece's melody—always entered into the mix.

Beta Foly visited Europe for tours every year between 1996 and 1999; since then, the group has been "on ice"—it's costly to tour with such a large ensemble; also, the deteriorating political situation in the Ivory Coast hasn't helped. But Africa has remained a prominent part of my musical life.

In 1997, I participated in a project in Zimbabwe and met with musicians of the Valley Tonga tribe living near Lake Kariba. Their “Ngoma Buntibe” music, originally used in burial ceremonies, is played by a large ensemble of horns and drums; each horn contributes one pitch to the fabric of the music, and the arrangements contain incredibly complex hocketing. While this general approach exists in several central and southern African cultures, Ngoma Buntibe is particularly daunting and confusing to listen to and has not been documented or analyzed extensively by musicologists. The Zimbabwean composer Keith Goddard found it reminiscent of avant-garde classical music from Europe of the 1950s and onward; at the same time the music, albeit totally arranged, sounds deceptively free and conjures up images of free jazz. My short stay with the Tonga did not allow me to comprehend this music’s structure, but I did gain one valuable insight: that danceability of music depends on the cultural environment of the dancer. The villagers had no problem dancing to Ngoma Buntibe, while I was clueless. I could imitate individual drum parts, but how they fit together, indeed how to identify any metric regularity at all, remained a mystery to me. I think that, in order to dance to music, one must identify the sounds or parts—drum or whatever—that provide the rhythmic backbone. Just about any music can be danced to, as long as one has the key to its “secret code.” I would even include ametric music, if one has a hotwired connection to the music maker’s head! After all, most music is made through motion; even the fingers of an oboist playing rubato constitute a type of dance.

My trip to Zimbabwe led to a brief stay in 1998 in Mozambique, where I was lucky enough to hear the Chopi timbila (marimba) virtuoso Venancio Mbande play with his ensemble (more than a dozen timbilas of different sizes) at his home. My melodic imagination had been greatly inspired by the music of the Mandé people since my first visit to Abidjan; this was now joined by Chopi music, which, while completely different, also touched me deeply. Its influences are noticeable in many of my compositions to this day. In 1999, in turn, I had the privilege of spending several weeks in Cairo, Egypt, collaborating with musicians from the Opera orchestra and with Nubian traditional musicians, exposing me to music from the region where Africa and Arabia meet.

Around the same time, Beta Foly traveled to Ouagadougou, Burkina Faso, for some concerts. Several of the group’s members were from Burkina, and Maï Lingani, a singer who had participated in our CD record-

ing, was living here now. In Ouaga, I found an extremely lively music scene, with bands playing at outdoor clubs in the middle of the night. They all seemed to play a similar repertoire of African pop standards mixed with kitschy American pop and jazz fare. Lying in my bed in the town’s center at 3 a.m., I would hear four bands, at four different venues in four different directions from me, playing *When the Saints Come Marching In* in four different keys, at four different speeds. Just walking around Ouaga with a microphone on a weekend night is a viable way to create a great sound-art piece. Maï had made enormous progress as a singer in the two years since I’d last seen her in Abidjan; she had established herself in Ouaga and had recently won the country’s most important music award. We subsequently worked together on several projects, including her debut solo album, *Entrons dans la danse*, voice/electronics duos, and even a concert playing together via a phone line, with her in Burkina and me in Austria. For some people who haven’t been to West Africa, it’s hard to imagine the lack of infrastructure there, while others assume the conditions to be totally primitive. Neither is the case. Working with technology in Africa is entirely feasible, albeit always an adventure. I’m fascinated by working in electronic music in Africa because I see many things about African culture that make it especially well-suited for electronic experimentation.

Over the past two to three years, ever since an Austrian NGO asked me to “do some concerts with musicians from Burkina Faso and electronics,” the band Burkina Electric has been my main Africa-related project. I invited Maï, Burkinabè guitarist Wende K. Blass, Pyrolator, and the Austrian composer Rupert Huber, best known as one-half of the Vienna downtempo electronica duo Tosca, to join me. Burkina Electric continues where we left off years earlier with *African Loops*—electronic dance club music, related to Western DJ culture, but using elements of traditional music, in this case from Burkina Faso. The group consists of vocals, guitar, drums, and electronics; we also added As, a dancer from Ouaga, to the group, as well as, usually, a second dancer and a backup singer. Our music, composed collaboratively, includes the sounds of many traditional instruments, but only in sampled form, and always treated and processed in unusual ways. Soundscapes recorded in Burkina are used; in fact, many of our songs have their origins in recordings we made whilst walking around in Ouaga. Our pieces are anchored either by traditional rhythms from Burkina, or rhythms of our own invention, inspired by these traditions.

Rhythms such as the waraba or the ouennenga, from the traditions of the Mossi people, are relatively simple, yet firmly outside of what is considered “danceable” in a Western club environment. We hope to supply listeners with the “secret code” needed to dance to these rhythms; the dancers are very helpful in live shows. Our experience has been that audiences may be confused at first; twenty minutes into the show, they are up and dancing. The most relevant thing about some of the rhythms we use is that they can be experienced both in two and in three, a feature of many African rhythms. As soon as this duality is accepted and the simultaneity is felt in a physical, visceral way, dancing is no problem. While these rhythms do have a clear “downbeat” once in a while, there is still a great deal of freedom in how to experience them, and we capitalize on that. I play drumset and the Marimba Lumina, a Buchla-designed percussion controller similar to an electronic marimba; Pyrolator again plays Lightning. All our pieces contain much freedom for improvisation; in concert, we mainly use Ableton’s Live software, which allows us to change songs greatly from one performance to the next. Pyrolator has written software in Max/MSP’s Jitter programming language to manipulate video footage shot in Burkina Faso. While Burkina Electric is clearly a pop band, we try to develop our own production values by combining the aesthetics of African traditional music with a fairly experimental approach to electronic pop.

My solo electronics playing, meanwhile, has also incorporated many of these same ideas. Using electronics, I wanted to preserve the idea of playing percussion. A drummer is concerned with starting sounds; then they tend to decay quickly, so ending them is not usually a concern. With electronics, that can be quite different; what that would do to my technique was only one of the many questions I asked myself as I delved into electronic percussion around the same time I first went to Africa. The DrumKat was conceived more or less for recreating a standard drum kit. That wasn’t at all what I wanted to do, but the instrument still proved very useful. Much of my initial work with electronic percussion was an expansion of my motion-pattern-based drum-set playing, going where I could not go with normal drums. I could program one of the DrumKat’s pads so that a different sound would be triggered every time I hit it. Using patterns similar to the ones I played on the drums, I was soon creating structures that would take thousands of beats until cycling back to the beginning. Indeed, there’s a piece in my repertoire that would need about 75,000 years! A desire to be

able to improvise more melodically led me, in 2005, to concentrate on the Marimba Lumina as my main electronic axe. A highly sophisticated instrument, it allows for very flexible programming. For example, it is played using four color-coded mallets, and the instrument knows which mallet is striking it, so it’s possible to program it completely differently depending on which mallet is used. My first concert with the Lumina was in September 2005 at the Unyazi Festival in Johannesburg, South Africa, the first-ever festival for experimental electronic music on the African continent. In 2006, I had the opportunity to spend some more time working in Johannesburg and enjoying its unique atmosphere, which feels like Atlanta and Lagos simultaneously and inspired me to think about why I’m so attracted to the combination of African music and electronics.

In many African languages, the words for “playing” and “dancing” music are identical. Electronic music has introduced an unprecedented detachment between motion and sound into music-making; audiences can’t follow most electronic music performers’ movements, not to mention connect them with the sounds they are hearing. Yet I think that live electronic music performance has huge potential as live music in its full kinetic sense, and Africa should be great terrain for this. Here, playing music is not taught exclusively via sound, but also via movement. Traditional African musicians could find new ways to perform electronic music and, in so doing, come up with ways to render electronic music far more interesting for live audiences. Likewise remarkable is the connection in Africa between music and language, with the rhythmic and tonal inflections of poetry embedded in many melodies as described in the above example of amadinda music. Electronics is an ideal environment for the combination of media; just as with dance, the proximity of music to poetry can open undiscovered artistic avenues, while the fact that similar structures are often explored in African music and visual art could lead to new analogies between electronic sound and visuals, with novel approaches to VJ-ing.

Much African music is cyclic and based on “additive” structures; in many ways, it is “digital” music, having at its heart a web of fast elementary pulse units. This way of thinking is quite close not only to basic ideas in computer architecture, but also, more practically, to how most sequencing software is conceptualized (though much of this software also uses bars and barlines, an entirely European concept). Most music software is made for pop songwriting, which obviously derives to quite an extent from African

models. So could most electronic music today actually be considered African music? And how would one conceptualize a sequencing program specifically geared toward an African way of musical thinking?

Timbral aesthetics is yet another area of difference between Africa and the West. In Europe, musicians and instrument builders have long pursued “clarity” and “purity” of sound, while in many African regions an instrument is incomplete without attached objects—be they spiderwebs, bottle caps, or whatever—that create a mirlitone effect. In a way, African instruments already “have their effect pedals built in”; sound processing, an essential part of electronic music, has been present in African music for a long time. Can this be used to creative ends in electronic music?

Furthermore, while Western-style orchestral instruments are largely identical worldwide, instrument construction and tuning in Africa varies from village to village, much like in electronic music, where different artists may be working with similar hardware or software platforms (wood from the same trees; the same traditional tunes) but customize these environments so that no two of them are the same, making it difficult for a musician to use the computer of a colleague. Like computer musicians who build their own environments, many African musicians build their own instruments; for them, this aspect of electronic music should be a natural fit, while non-Africans working with electronics can seek inspiration from the extreme multitude of African tuning systems, timbral variations, etc., and use their electronics to find new avenues for harmony and timbre not viable with conventional Western instruments.

Then there is my personal fascination with interlocking structures and the creation of consonances, dissonances, and harmonies made not from a multitude of simultaneous melodies but from a simultaneity of rhythms and tempos. While physical, acoustical properties of music are constant regardless of culture, the ways they are used in the conceptualization of music vary greatly from culture to culture. A fitting analogy is the area of ethnomathematics: while the basic laws of mathematics are the same everywhere, the way this knowledge is exploited is not. The book *Ethnomathematik, dargestellt am Beispiel der Sona-Geometrie* (Spektrum akademischer Verlag, Germany, 1997), by the Mozambican mathematician Paulus Gerdes, has been exemplary for me in this regard. Using the geometrical analysis of southern African sand drawings, Gerdes points to ways of using traditional craft, acquired by children at a young age, in curriculum

design for African elementary schools; for example, how basket-weaving could lead to a new way of teaching geometry. Similarly interesting, the American mathematician Ron Eglash in his book *African Fractals: Modern Computing and Indigenous Design* (Rutgers University Press, U.S., 1999) argues that African art contains some very direct and clear uses of fractal geometry, be it in large-scale designs such as settlement architecture, or on a smaller scale in textile design, or, in an even more confined dimension, in hair braiding.

And, of course, there are countless social and sociological questions and implications, and the incredible possibilities and promise that technology, especially the Internet, holds for Africa, a continent suffering from a chronic lack of access to information. Bringing electronics to remote areas of Africa can motivate people, no matter how far off the beaten track they live, to find ways to seek out access to information; playing unconventional music can inspire people to think outside of the box and thus empower themselves to solve problems that have proven uniquely resistant to any within-the-box approach. One of my most moving experiences was playing solo electronics in the beer hall of a village in Zimbabwe where electricity had arrived only three weeks before. My audience, about 200 elementary-age children, were some of the most concentrated listeners I've ever had. They must have thought I'd come directly from Mars. When I was done, they kept sitting there, silent. I was as astonished as they were, and just sat there as well. Finally, one child broke the silence: “Can I go to the bathroom?”

I think I have a lot left to do in the field of experimental and electronic Africana. It has, for me, been an extremely satisfying road to travel, both artistically and personally. Largely off the beaten track for experimental musicians, it is still, in many ways, avant-garde music's virgin territory. Spending time in this incredibly diverse, culture-rich continent has changed my way of thinking, and listening to its music has warmed my heart and stimulated my mind. It has provided me with lasting friendships and neverending inspiration. Africa has crept into all of my work, and I'm happy it is there.

# ARCANA II MUSICIANS ON MUSIC

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